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UNIVERSITY OF ALBERTA

Children's Use of Context in Reading: A Comparison Between Whole Language and Skill Based Approaches

by

Kay Wilson

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A Thesis Submitted to the Faculty of Graduate Studies and Research in Partial Fulfillment of the Requirements for the Degree of Master of Education

in

School Psychology

Department of Educational Psychology

Edmonton, Alberta

Fall, 1995

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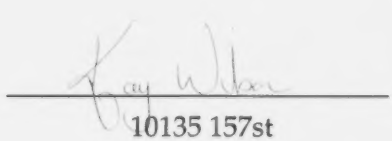

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled **Children's Use of Context in Reading: A Comparison Between Whole Language and Skill Based Approaches** submitted by **Kay Wilson** in partial fulfillment of the requirements for the degree of Master of Education in School Psychology.

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ABSTRACT

Two groups of second-grade children who differed in their teacher's instructional approach were compared on context use. Fifty-four children participated in the study, 27 from whole language classrooms and 27 from skill based classrooms. Reading level was assessed using the Gates MacGinitie reading comprehension subtest. From the Gates MacGinitie, a criterion at the 25th percentile was established for participation. At the end of grade two all of the children were administered three tasks: (a) word identification with words presented in isolation and in context, (b) a grapheme substitution passage and (c) a cloze procedure. The cloze procedure was the only measure to show a significant difference between the groups, favouring whole language classrooms. There were no other significant findings between the two instructional approaches. Further analysis revealed significant main effects for reading ability on the word identification task and cloze procedure, but not for the grapheme substitution passage. On this task single letters were changed to produce another real word that was not consistent with the passage context. The children in both groups responded most often with the changed words versus the original, unaltered words consistent with semantic context indicating an overall reliance on graphic information.

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Chapter One

Introduction

Determining the best method to teach our children has plagued civilization for centuries. There is evidence from as far back as ancient Greece of disagreements over pedagogical philosophies. However, educational arguments in fifth century (B.C.) Athens involved primarily adolescent instruction, young children were taught without debate. Athenian children began school at approximately the same age as children do now and similarly these ancient children also spend the majority of their early school lives learning to read. Today there is dispute about education at all levels, but substantial attention and research has been directed toward early literacy instruction.

The Greeks had a relatively stable system for teaching reading. Young children received instruction in basic literacy skills from the "grammatistes," whose first job was to teach the alphabet. Plato illustrated the instructional process saying: " When a boy knows his letters and is ready to proceed from the spoken to the written word, his teachers set [sic] him down at his desk and make him read the words of the great poets and learn them by heart;..." (Cited in Joint association of classical teachers' Greek course background book, 1989, p.172). The majority of boys, and some girls, in the classical period learned to read in this manner.

The ancient Greeks created a phonetic alphabet where the letters represent all the sounds in the language (Chall, 1995; Joint association of classical teachers' Greek course background book, 1989). They determined that to read, the letters would eventually have to be memorized. This process

was facilitated by giving the letters individual names and a fixed order. Because the phonetic structure allowed the preservation of a writer's actual words, the Greek style of alphabet displaced earlier writing forms, particularly picture writing (Mathews, 1966).

English has an alphabet that is phonetically based, but unlike the Greek alphabet it is not as pure a representation (Mathews, 1966). We have more sounds in English than the 26 letters of our alphabet can represent individually. Most who study linguistics agree that English contains 44 phonemes or individual sounds (Matthes, 1972). The fact that the English alphabet does not have a complete letter to sound format has been the foundation on which many educational disagreements have been based.

Over the last century, North American educators have engaged in an enduring debate focussed on early reading education. Reading experts have followed either a "top-down" or "bottom-up" process of beginning reading. Many labels have been applied to these instructional processes. The "top-down" method, focusing primarily on meaning, is often referred to as a holistic approach. Within this approach, reading begins with the meaning of words and not the components of words. The "bottom-up" method is often referred to as code based, because its focus is the sound units contained within words (Chall, 1995).

Each side of the reading debate has its own explanation for the process of word identification. Without the ability to identify words every other aspect of reading, such as comprehension, is impossible. There are two basic methods that children use to identify words: the first is through phonological recoding, and the second is through visually based retrieval (Siegler, 1991). The end product of word identification in both the "top-down" and "bottom-up" methods is the retrieval of words from memory--the storage cupboard

containing the identities of all the words we know. Over the past century each approach, in one form or another, has risen to popularity and been the primary philosophy on which instruction is based. It is because both approaches are successful at teaching many children to read that they each are able to vie successfully for educational superiority. Likewise because each approach fails some children, the competing philosophy is able to gain recognition and usurp its opponent.

In the code-based method, children make the association between how the components of a word look and how they sound. It is from this information that new words are identified. Like the Greeks, many early American educators based their instructional practices of initial literacy skill on phonetics. One of the first primers based on phonetics was published by Noah Webster before he created his dictionary. This primer was widely used and remained popular until the publication of the McGuffey reading series in the mid 1800's. Many other basal readers were developed and flourished up until the late 1920's. It was at this time that the whole word approach to reading instruction grew in popularity and acceptance (Cushenbery, 1989; Flesch, 1955).

In the whole-word method children retrieve words as whole units similar to the retrieval of Chinese symbols. However, the definition of whole-word has gone through a number of evolutionary changes. The idea of teaching the whole word is not new; this method has been discussed by educators at various times since the 1500's. One of the earliest word methods began in Germany using words to help children learn individual speech sounds. Mathews (1966) refers to this as the word-to-letter method. Children were familiarized with letters through their sounds and not as had been done previously through their names (Mathews, 1966). For example, in the earlier

teaching style children were required to recite the alphabet forwards and backwards before they were instructed in reading. In the word-to-letter method, the alphabet was not introduced at the onset of instruction. The teacher would first present a simple word such as "cow" and have the children analyze the sounds in the word. This method directed instruction away from letter names and toward letter sounds. During the mid-nineteenth century there was some confusion over the word method because there was great variability in its meaning. The term "whole-word" referred to the already described word-to-letter approach, but it also referred to a word-to-reading approach more commonly associated with "look-say" method where words are identified as whole units from their shapes.

Eventually the term whole-word became more narrowly defined and is now used to describe the word-to-reading approach (look-say). Whole word retrieval was based on the premise that to teach children to become skilled readers, they should be instructed to read as skilled readers do; therefore, they should be taught to read whole words, not parts of words (Siegler, 1991). Early studies demonstrated that adults recall more letters when they are contained in familiar words than when presented as unrelated units. These findings were used to support the notion that a word's shape was primary in its retrieval from memory and not the individual letters contained within (Chall, 1983; Flesch, 1955). The whole word method was the primary medium of instruction until the late 1960's when with support from such books as "Why Johnny Can't Read" (Flesch, 1955) and "The Great Debate" (Chall 1967) educators demanded a return to code-emphasis instruction. Chall (1983) states that although early studies in word recognition provided evidence supporting instruction by a whole-word method, the conclusions of these studies were not an adequate description of the reading process. Later

studies found the "word superiority" effect is also evident in non-words whose letter strings follow the same rules of orthography that govern real words. Chall (1983) speculated there may be an ease at processing words that follow regular patterns, however, this does not mean the word is the unit of perception.

Once again in the 1980's there was a swing of the educational pendulum. But this time it was no longer the whole word advocates that were waiting but their descendants, the whole language advocates. Whole language grew out of the primary philosophy of the whole-word method that children should be taught to read as a whole rather than in bits and pieces as occurs in phonics. The eighteenth-century German educator Gerdike developed a philosophy of reading education that is now the foundation of whole language. His philosophy is based on the concept of naturalness and wholeness. To teach a child from the parts, i.e. letters, is contrary to the wholeness of nature and so the most logical place for a child to begin was with a book and not its un-natural pieces (Mathews, 1966). Gerdike described young children as being tortured in the instructional practices of the day that required the tedious memorization of letters and syllables. Besides torturing the children, Gerdike also viewed this method as a waste of time and energy because the units the children were being forced to memorize have no meaning. Beginning with the logical whole, a book, was not only more meaningful but also involved a child's imagination thereby increasing motivation to learn (Mathews, 1966).

The whole language method has at its basis the same founding tenet as Gerdike's original philosophy that instruction should occur from the "whole." From this perspective the school surroundings should resemble, as closely as possible, the natural environment that stimulates learning in

children. The learning of the "whole" also assumes that it be associated with meaning. The learning process is facilitated, and even enhanced, when material is placed within meaningful context.

Through the 1980's the whole language philosophy was used as the basis of early reading instruction, but in the 1990's a movement began again toward the code-emphasis approach to reading instruction. In many realms, American society balances itself through the adversarial relationship. This mechanism has evolved to prevent us from leaning too far in a direction without considering an alternate point of view. Law and politics are primary examples of this mechanism in action. However, creating balance through antagonism has also been transported to the educational realm and has precipitated the movement from one approach to another a number of times over the past century. Do we gain anything from vacillating between approaches? With each swing of the pendulum are we merely revisiting a place we have been before? For the optimistic educator, it is necessary to believe that with each swing we gain knowledge that guides the pendulum to a different resting place, each time closer to the ideal instructional method.

The battle over which approach is the most effective in early reading instruction continues with vigor. The literature in the area of reading depicts an irreconcilable division in the philosophies of practice. It is unfortunate, but the common metaphors of a "Great Debate" or "warring factions" adequately describe the relationship that exists between the competing philosophies, each side defending its own views and practices as the most effective for reading instruction (Moorman Blanton & Mclaughin, 1994; Chall, 1983). At times when reading the literature in the area, one cannot help but wonder if the proponents of either side are guided by scientific reasoning or by internal visceral logic.

The Nature of the Study

Word identification is the first key required to unlock the mystery that is held within groups of letters. When a child has this skill firmly in hand, s/he is then able to navigate through a variety of printed materials. There are a number of information sources available to aid a child in the identification process. For example, a child can use the visual information from the physical appearance of the word; phonetic information from the sounds within a word; or semantic information from the context in which the word is embedded.

Whole language advocates dictate that words should not be taught in isolation, because it is the context in which a word rests that promotes recognition and understanding. Goodman (1979) suggested that poor readers are tied to print and are unable to use context to aid word identification. They are unable to view what they read in a holistic and complete manner, rather they see each word as individual and separate from the last. Poor readers often fail to see the relationship that words have with each other and focus only on the process of mere identification. Goodman (1968) described the process in the following way: "Again the trouble is that words are not the real entities that they appear to be. They retain their physical appearance in isolation, but they lose much of their semantic and syntactic quality as language units" (p.31). Goodman (1968) directs teachers to move away from the "word" as the center of classroom activities toward a focus on "comprehension." Words should be seen only as components of the much larger meaning unit. It is through this process that, Goodman suggests, children develop the strategies for using semantic and syntactic context in order to form the correspondence between oral and written language required

in reading.

The purpose of this study is to determine if there is difference in the effectiveness with which children from dissimilar instructional classrooms use context in the process of word identification. Because context is vital in creating the units of meaning from which comprehension of individual words is grounded, will children in classrooms that emphasize context use it more effectively than classroom where the word continues to be the primary unit of study?

In chapter two literature relating to "bottom-up" and "top-down" philosphies is presented. The method of the study is reviewed in chapter three, and results in chapter four. The final chapter contains a discussion of results and their implications for classroom instruction.

Definition of Terms

Phonemic awareness is defined as "conscious access to the phonemic level of the speech stream and some ability to cognitively manipulate representations at this level" (Stanovich, 1986, p.362).

Whole language "is a concept that embodies both a philosophy of language development as well as the instructional approaches embedded within, and supportive of, that philosophy. This concept includes the use of real literature and writing in the context of meaningful, functional, and cooperative experiences in order to develop in students motivation and interests in the process of learning" (Bergeron, 1990, p.319).

Phoneme The smallest unit of speech that distinguishes one sound from another. (Webster's New Collegiate Dictionary, 1977).

Grapheme " The set of units of a writing system that represent a phoneme" (Webster's New Collegiate Dictionary, 1977, p.501).

Orthography The rules that govern how letters are arranged in words according to standard use (Ehri, 1991).

Onset-rime is a division of a monosyllabic word into two constituent parts. The initial consonant(s) and vowel are the onset and the remainder of the syllable is the rime (Kirtley, Bryant, MacLean and Bradley, 1989).

CHAPTER 2

Literature Review

This chapter provides an overview of the research related to delineating the process of reading acquisition. A plethora of views on reading exist in the literature, however, because it is so vast, only a portion of views will be considered. The literature is presented in two broad categories: "bottom-up" views to reading and "top-down" views to reading, representing each side of the debate between educational philosophies presented in the previous chapter.

Educators supporting "bottom-up" views focus on word identification and associated discrete skills. They emphasize the relationship between a child's understanding of the alphabetic principle and reading. The learning of sound-spelling associations is stressed in order to facilitate the acquisition of reading. Sound-spelling associations are the relationship between the letters in a word and their sounds. To more fully explicate the "bottom-up" approach some theoretical models are explored, followed by a description of selected research studies.

Those who promote the "top-down" view emphasize the holistic nature of reading, maintaining that the primary goal of reading is comprehension. Since the "top-down" approach is holistic in nature it translates into a unique view of how classroom instruction is to be approached.

In the final section research comparing "bottom-up" (skill-based) and "top-down" (whole language) classroom methods is presented. These studies have not determined the ideal instructional method, finding evidence for the

effectiveness of both approaches in the classroom.

Bottom-up View of Reading

Understanding any approach to reading acquisition must necessarily begin with a theoretical model. The purpose of a model is to integrate the knowledge of an area illustrating the phenomenon in question. When new knowledge is acquired, a model is often restricted in its ability to incorporate and explain the phenomenon. Therefore, a model is only useful for as long as it is able to explain most aspects of the phenomenon. When unable to do so, the production of a new model is required (Adams, 1993; and Samuel, 1993).

Chall's (1983) reading model is used to describe the sequences associated with the acquisition of reading. Since its inception this model has been employed to explain the phenomena of reading. This may be because Chall provides an extensive description of the stages of reading acquisition; however, she does not provide details of the mechanisms that underlie each stage.

Chall's (1983) model is one of the broadest reading models proposed. She defines reading development as occurring in stages, and argues that for each stage to begin, the reader must master the preceding stage. There are six stages beginning with the non-reader and ending with the competent, fluid reader.

1. Stage 0. Prereading: Birth to Age 6
2. Stage 1. Initial reading, or decoding, Stage: Grades 1-2, Ages 6-7
3. Stage 2. Confirmation, fluency, ungluing from Print: Grades 2-3, Ages 7- 8
4. Stage 3. Reading for learning the new: A first step: Grades 4-8, Ages 9-14
5. Stage 4. Multiple viewpoints: high school, Ages 14-18

6. Stage 5. Construction and reconstruction of a world view, Ages 18 and Above.

As my primary interest is in beginning reading only the first three stages will be considered in this review. Generally stages represent periods of development where discrete skills are observable. A stage is imposed on a period of growth that appears qualitatively different from the preceding or next stages. The first stage (stage 0) is the prereading stage, and describes most preschool and kindergarten children. Here children develop abilities that will aid them in the process of understanding the written code. Children not only hone their abilities that deal specifically with reading (such as skills and knowledge in emergent literacy) but also they become more knowledgeable implicitly and explicitly with language. In this stage, readers become more aware of sounds within words, and how these word sounds can be broken-up to produce different words or rhymes. Emerging also at this stage is the novice reader's understandings of how sounds in words are blended (Chall, 1983; Juel, 1991). This ability, referred to as synthesis, is a necessary skill for reading to begin. Although at this stage children are not yet readers, their awareness of speech units and their ability to manipulate them is highly predictive of later reading performance (Wagner, Torgeson, Laughon, Simmons, & Rashotte, 1993).

After kindergarten, Grade 1 & 2 children illustrate reading development which is generally descriptive of Chall's Stage 1 reader. In this stage children begin to crack the written code and gradually develop the ability to read. Their awareness of speech sounds that began in the previous stage becomes more refined. Stage 1 readers are able to learn how to map these sounds onto letters, thereby developing the alphabetic principle. This

allows the children to more easily decipher the written code. By the time children are in Grades 2 and 3 (stage 2), they develop reading fluency and become "unglued" from print. They are not merely decoding, but are now using other information such as context and syntax to aid in the reading process (Chall, 1983).

Chall's (1983) model is a broad overview of the development of reading. Other models do not attempt to explain the whole of reading but rather explicate a smaller, narrower section of the process. For example Frith's model describes only the beginning stages of reading acquisition (cited in Ehri, 1991). According to Frith, beginner readers use different types of information during their development in becoming skilled readers. Initially children use logographic information: information received from the physical features of individual letters called graphemes. They then use alphabetic information, which is the sound relationships of phonemes with graphemes. Finally orthographic information is processed. This is the knowledge and use of spelling patterns or the internal rules that discern how words are put together (cited in Ehri, 1991).

In the logographic phase young readers use salient features of words in the identification process. For example, prominent environmental cues such as the colour and distinctive shape of a stop sign may be used to identify the word STOP (Ehri, 1991). Other types of salient information can also be extracted from words that occur without environmental context. The final "y" in monkey may be related to a monkey's tail and can be used to gain access to the meaning of "monkey" held in memory. The child does not process any of the other letters of the word, which causes confusion when another word ending in "y" is encountered (Ehri, 1991). Studies that examined the influence of environmental context on word reading

demonstrate that when these cues are removed children are unable to read the target words (Ehri, 1991). Removing the physical distinctiveness of the colour and shape of a stop sign would render the word unreadable to the logographic reader.

As children begin the transition into the alphabetic phase, they begin to use other information. To illustrate, Ehri gave children words whose spellings were visually distinctive ("yMp" for turtle) and other words that had letters that sounded similar to the target word ("JRF" for giraffe). The children benefited differentially from the information provided in these constructed word spellings. Children who exclusively use logographic information do not appear to benefit from the added phonetic information available in "JRF", but those children able to read a few words before the study began seemed to profit much more from the additional information given by the sound-letter associations. These children were approaching the next phase of reading development. This next phase requires the ability to use grapheme-phoneme correspondences (Ehri, 1991).

The alphabetic phase begins when children know all the letters and can associate them with their corresponding sound, or phoneme. This knowledge provides the reader the means to read unfamiliar words, which has an advantage over the logographic stage because it places less of a strain on memory. Without environmental context, logographic readers are only able to learn 3 or 4 words at a time and these are usually forgotten quickly (Ehri, 1991).

The orthographic phase is characterized by the ability to analyze words without the aid of a phonological mediation variable. After repeated exposure to spelling patterns children are thought to perceive the rules that direct them. Words that are similar or have the same endings, as in "mad,"

and "fad," may, therefore, be easier to read. However, this assertion is not universally accepted, and is challenged by other bottom-up theorists. Goswami (1991) describes the use of orthographic similarity as a strategy children use before they become aware of individual phonemes in words. She, therefore, places the use of spelling patterns as occurring before the alphabetic phase has reached fruition. Although the foundation of reading is word identification, the actual mechanics of this process remain clouded. Researchers struggle with the task of unraveling how word identification occurs.

Word Identification

Learning to read involves the association of the spoken word to the printed word. The first step in this process is word identification, through which the final goal of reading is realized--the extraction of meaning from text (Share & Stanovich, 1995). The apparent simplicity of this goal is deceiving. Most adults recognize words so quickly that little attention is paid to the process, but the method by which children actually learn the association between speech and print is essentially unknown. There exists much speculation and, consequently, much research that attempts to unravel this enigma.

Samuels (1993) focused on an information processing theory to describe word identification. He speaks of initial decoding as an attention using activity. When an action is automatic, it requires little attention. Samuels (1993) defines attention "as the effort or energy used to process information" (p.819). Because humans have a limited amount of attention, tasks that are new or require a large amount of attention usually have to be performed in isolation. For example, when learning to drive, an individual has to

deliberately attend to each action as it is being performed and, therefore, has difficulty coping with another task that also demands attention, such as carrying on a conversation. On the other hand, an experienced driver will generally have little difficulty driving, unwrapping a piece of gum, and having a conversation all at the same time. This suggests that with practice the discrete skills required in driving become integrated and require much less attention than during the initial stages. Samuels (1993) suggests that the same process also occurs with novice readers. To read, children must perform two highly attention intensive activities: first they must decode the words on a page and second, they must comprehend them. Because both activities require attentional capacities, they cannot be performed at the same time. The young reader must first decode the individual words and then integrate the words to comprehend their meaning. With sufficient practice, the beginner becomes a proficient decoder and is able execute this task with relatively little attention, thereby leaving attentional capacities open for the task of comprehension.

Two basic mechanisms have been suggested to explain word identification. The first is phonological recoding, and the second is visually based retrieval. The end product of both these methods is the location and retrieval of a word from the lexicon which stores all word meanings known to the reader. However, these methods are mechanically different. In phonological recoding (decoding) children make the association between how the components of a word look and how they sound. It is from this auditory information that the word is located in memory. When retrieving a word visually the use of auditory information is avoided, so children locate the word in memory by its shape (Siegler, 1991). Both of these mechanisms are used within the "dual-route" hypothesis. Direct access is the primary route

where the spelling structure of a word maps directly on to the word meaning in memory. The secondary route is mediated by phonological information. Therefore, instead of accessing a word directly through its spelling structure (orthography), auditory information from the sounds associated with the spellings is mapped onto the word first (VanOrden, Pennington, & Stone, 1990).

Visually based retrieval. Chinese is often used as an example of visual based retrieval because each of the symbols must be learned independently without assistance of articulatory information from phonological structures; word meanings are accessed directly from their associations with characters (Perfetti, 1985).

Researchers investigating perceptual processes have extensively used controlled laboratory experiments. Through eye fixation studies, investigators determined that a reader fixates on 80% of content words, and only while fixating is a reader able to gain information from text (Perfetti, 1979). Perfetti (1979) states that we fixate for longer periods of time on long words than we do on short words. This is important because if words are retrieved by shape, the size would be insignificant. From this perspective the whole-word is used as the unit of comparison to that held in memory, thereby reducing the entire word to one stimulus. (Gough, 1979).

Phonological awareness and reading. Auditory information received from the units of speech associated with letters assists word identification. Although within the dual-route hypotheses direct access and phonologically mediated access are assumed to be independent processes, VanOrden et al., (1990) conclude that phonological information is used each time a word is identified regardless of reading ability.

The awareness of phonological speech units is viewed by many

researchers as crucial to the reading process. Phonological awareness occurs at different levels. The smallest level is that of the phoneme; for example, the word "dog" has three phonemes /d/, /o/, and /g/, with each symbol /-/representing the sound associated with the visual form of the letter--*the grapheme*. Therefore the sound /d/ maps directly onto the letter d (Goswami, 1991).

Larger levels of phonological awareness exist at the intrasyllabic level, occurring within the syllable. Trieman (1985) discusses the units of "onset" and "rime." She found that when a word is divided between these units, it appears more natural to learn. The onset consists of the first consonant or consonant cluster, such as the "c" in cat or the "st" in stop, and the rime consists of the vowel and final consonant, the "at" in cat and "op" in stop.

Those who argue for the salience of the onset-rime unit propose that children readily split spoken words into these larger units and cite children's word errors as evidence. For example children's errors in the words "shout" and "yell" usually blend to produce "shell" but not "shoull." This pattern of blending occurs naturally between the onset "sh" and the rime "ell," rather than between the beginning consonant-vowel ("shou") of the first word and the final consonant cluster of the second ("ll") (Wise, Olson, & Trieman, 1990; Goswami, 1991). Further evidence supporting the salience of intrasyllabic units exists in children's word games. When playing with words, children usually divide the word at the onset and rime rather than at any other place in the syllable (Wise et al., 1990). Wise et al. (1990) suggest that onset-rime units are most helpful to children when learning new words. Only when children have actually learned to read are they able to manipulate and isolate individual phonemes. This hypothesis illustrates the possibility of a reciprocal relationship between reading and individual phoneme detection.

Bryant, MacLean, Bradley, and Crossland (1990) strongly support the position that children are sensitive to these larger speech units. They suggest that these units are essential to reading, and awareness of these larger units may occur before that of individual phonemes. Kirtley, Bryant, MacLean, and Bradley (1989) provided support for this assertion in a study examining the relationship of children's rhyming abilities to reading. These authors found that children only categorize words by their final consonant suggesting that a major step in learning to read takes place when a child can break the rime into its constituents and manipulate individual phonemes. Bryant et al., (1990) contend that although awareness of the larger intrasyllabic units is an important precursor, it is the ability to manipulate phonemes that influences the development of reading.

Training studies where children are taught to be aware of phonemes have been used to demonstrate that training in phonemic awareness can improve a child's reading abilities. Cunningham's (1990) study confirms the existence of a firm directional relationship between phonological awareness and reading.

Goswami (1990) states that reading one word based on the knowledge of another is directly related to a child's ability to use phonological information at the intrasyllabic level. She argues that the use of orthographic information may actually occur at an earlier stage in the development of reading than Frith suggests (cited in Ehri, 1991). Children are able to use these intrasyllabic units to form analogies between words they know and those they are learning. From the word "beak" a child may infer about other words such as "bean" and "peak." Goswami (1990) found that the level of children's rhyming and alliteration skills related directly to their ability to use analogies. However, like Wise et al. (1990), she found no evidence that

children make connections between single letters and single phonemes in initial reading development. These authors suggest that children do not naturally analyze the spoken word into individual phonemes and further propose that the role of rime units in reading is independent of grapheme-phoneme knowledge. Goswami states, "[e]arly phonological knowledge may be of relatively gross phonological units: syllables, onsets and rimes. Awareness of phonemes may emerge only once children are taught to read or receive specific training about phonemes" (1991, p. 1111). Goswami further argues that children do not possess the innate ability to isolate individual phonemes. Children develop this skill only when they are taught to read.

Those who challenge Goswami's position argue that to use analogy, a child must have some decoding skill (Ehri and Robbins, 1992). If children begin reading individual words without individual phoneme knowledge, their reading knowledge emerges through memories of letters corresponding to sounds in pronunciation, as /eak/ in "peak." If it is the memory of the similar characteristics between the two words that a child stores, these authors say, the known words would then be mistaken for new words. A child would be unable to analogize from "peak " to "beak" because he could not encode the additional and necessary information from the initial phoneme. Ehri and Robbins (1992) hypothesize that readers with some decoding ability (the ability to identify and utilize individual phonemes) are able to recognize the analogous relationship between a known and an unknown word, but those children without decoding ability are unable to make this connection. Their description of the process is that the reader stores the spellings of words in lexical memory and when the connection is made between specific letters and the sound they produce together, other words with similar connections can be read. Therefore, children require sufficient detail in storing one word

as a base so that it can be used as a foundation for comparison to other words.

In their study, Ehri and Robbins (1992) first tested children for recoding ability, then split them into two groups: decoders and nondecoders. Only decoders exhibited the effects of analogy. After being taught a series of words the nondecoders often read new words as the original training words; a phenomenon not found in those children who had individual phoneme knowledge. From their results, Ehri and Robbins (1992) speculate that phonological recoding may aid analogy to known words in two ways. First, it may allow children to segment into onset and rime subunits; units that are later recombined to form words. Second, phonological recoding may allow children to form connections between graphemes and phonemes and store these connections in lexical memory. They further speculate that analogizing may be a strategy beginner readers with individual phoneme knowledge use to identify words. Because the rimes are previously blended phonemes, children do not need to blend each phoneme individually. This then alleviates the load on working memory. Once children have developed efficient decoding skills, Ehri and Robbins (1992) predict analogy is dropped as a strategy.

Consistent with Goswami (1991), Ehri and Robbins (1992) would agree analogy maybe used as an early strategy in confronting the word; however, they would disagree over the amount of initial decoding prowess that is requisite. Goswami suggests only the need to store and use large phonological units, while Ehri & Robbins argue that individual phoneme knowledge is required first.

The role of context in word identification. The context that precedes a word in text has been shown to assist in word identification. Perfetti (1985) says as working memory processes written material it also

functions to activate words in long term storage. This activation spreads to semantically related words priming a word before it has been encountered in text. In this manner the contextual environment can facilitate word identification. However, context is variable in its ability to constrain a word in normal connected text. Words that are extremely predictable will be highly facilitated by the context. In experimental studies, researchers often use highly predictable contexts and place the target word at the end of a sentence. By studying words in the final position, researchers may be lead to generalizations based only on the final word in a sentence, a position that generally ignores the majority of other words in connected text. To illustrate, if the average sentence contains 20 words, and researchers focus on the twentieth word, the other nineteen (95%) words usually found in a sentence are ignored (Gough, 1983). Gough (1993) describes that the majority of words in text have a low level of predictability, saying that function words are generally 40% predictable and content words 10% predictable, with an overall 25% for the average word (Gough, 1983).

Perfetti (1985) suggests that as context becomes increasingly specific, constraining the number of words that can possibly be encountered next, activation of highly related words increases. This mechanism may function to support feature detection and compensate when feature detection is impeded. Perfetti and Roth (1981; cited in Perfetti, 1985) demonstrated this assumption in a study where words were presented to participants in an increasingly degraded form. The words were degraded by decreasing their visual clarity. Results show the more degraded the word the longer its reading time. Context was then varied to be more or less facilitative of word identification. As the sentence increasingly constrained the identity of the target word there was an increase in both speed and accuracy of word

identification. Perfetti (1985) suggests these results show semantic activation can compensate for poor letter activation. The relationship between these processes in skilled reading is asymmetrical. The lower level processes have autonomy and contribute to word identification separate from context.

These findings are consistent with those of other researchers who contend that if there is an impediment to normal word recognition processes, readers will naturally increase their dependence on context (Tunmer & Chapman 1995; Stanovich, West, & Freeman, 1981). Many of those who promote "top-down" only mechanisms in reading disagree with this viewpoint. Goodman (1976) concludes that through the use of semantic and syntactic information a reader uses the constraints created in text to predict a word's identity independent of the integrity of individual words. To illustrate this point of view, Goodman and Goodman (1979) discuss four differences between good and poor readers:

1. There is only one reading process. Readers may differ in the control of this process but not in the process they use.
2. Nonproficient readers have problems in getting it all together. They tend to bog down in preoccupation with letters and words and lose meaning.
3. The major difference among readers, baring proficiency, is their ability to comprehend what they read.
4. Older nonproficient readers seem to have acquired a nonfunctional skill. They can produce phonic matches or near-misses for words. They can handle short phrases. But they don't get much sense from what they read and seem not to expect sense (p.148).

This quotation suggests the use of context for word identification is a more advanced skill than the use of visual cues and, therefore, poor readers' difficulties lie in their lack of skill in using syntactic and semantic

information (Biemiller, 1994). Goodman (1976) says that "[s]kill in reading involves not greater precision, but more accurate first guesses based on better sampling techniques, greater control over language structure, broadened experiences and increased conceptual development. As the child develops reading skill and speed he uses increasingly fewer graphic cues" (p. 504). Perfetti (1985) disputes the suggestion that reading is a "psycholinguistic guessing game," as proposed by Goodman (1976), and says that because a skilled reader fixates on three to four words per second there is very little time for guessing. Goodman (1976) counters this conclusion, by arguing studies in visual perception represent a narrow view of reading that is too restrictive to fully describe the whole process. He, therefore, advocates for a holistic "top-down" approach to reading.

Implications for Classroom Instruction.

Researchers exploring the instructional implications of bottom-up processes support their use in the classroom. Not only is basic instruction in phoneme awareness thought to be required in initial reading acquisition, but also, some authors are now suggesting instruction should be explicit (Cunningham, 1990; Iverson & Tunmer, 1993). Cunningham (1990) found that children who are taught the application and value of phonemic awareness as well as procedural knowledge showed significant improvement over children who received only implicit, procedural, teaching of phonemic awareness. Using a similar approach, Iverson and Tunmer (1993) compared the gains that children made in a standard reading recovery program to those made in a modified reading recovery program. The standard reading recovery program included the teaching of phonological units, but only implicit, procedural knowledge. The modified program included training in

phonological recoding as well as additional information focussing on the purpose of such activities. The children in this group exceeded the gains of the children in the regular reading recovery program. These researchers argue against the assumption that alphabetic coding is acquired through a natural process of interaction with connected text. Iverson and Tunmer strongly support the position that systematic instruction in sound letter correspondences is required, particularly for readers identified as at risk of failure.

The inclusion of decoding activities in the classroom is supported by the work of Cunningham (1990), and Iverson and Tunmer (1993). However, this does not suggest these authors advocate only for phonics type activities and not the use of connected text. They would support the use of both decoding skills and connected text as part of a curriculum. An ideal classroom is where children are stimulated to learn and able to do so in the most efficient manner for each individual.

Top-down View of Reading

The top-down view of reading is practiced through the whole language approach to instruction in the classroom. Whole language is viewed as holistic in nature because it incorporates all aspects of the learning process. The child is seen as part of a large system involving family and societal influences, therefore, individual experience and knowledge gained from interactions with the environment are welcomed in classrooms.

Top-down Philosophy

When discussing the development of reading from the top-down perspective it is important not only to consider the individual development

but also the social development of reading. As human society became more complex there was a need to develop more effective means of communicating with one another. Early in social development this required the evolution of complex language as a means of communication. The bridging of spatial and temporal barriers occurred through the transfer of oral histories from person to person and generation to generation (Goodman, 1986). Written language is a more sophisticated communication device and also slightly more reliable in passing on words than oral language. Although it is not flawless, writing is less prone to the fallibility of human memory; it can transfer accurately the words of a writer to an audience generations later. Goodman (1979) suggests that in a literate society written language is integrated into its communication system. Therefore, in order to function effectively in society, each individual must learn this communicative form.

A fundamental question regarding written communication is what is its purpose, besides merely transcending spatial and temporal boundaries? Olson (1977) suggests that written communication is a necessary mechanism for the acquisition of knowledge by children. From this viewpoint, the fundamental difference between children and adults is the amount of knowledge they hold. The world is first understood and conceptualized through the experiences of the individual. It is this conceptual understanding that oral language maps onto, which in turn can be mapped onto written language. In order to facilitate maximum growth, the school environment should resemble and promote the context of the environment where knowledge and awareness are learned (Olson, 1977).

Some of the tenets of Goodman's (1979) philosophy also support the view that to stimulate learning in children, the school environment should resemble, as closely as possible, the natural environment. He proposes a rich

child-centred classroom from which children can extract meaning (Goodman, 1979).

The Relationship Between Language and Literacy

In his conceptualizations of the child-centred approach Goodman draws on and extends the theoretical words of two scholars. The first, Chomsky, wrote on theories of language while the second, Smith, like Goodman, wrote on theories of reading, (Adams, 1994; Stahl, McKenna, & Pagnucco, 1994). Chomsky proposed that language is a natural process and somehow infants are predisposed or "pre-wired" to its acquisition (cited in Siegler, 1991). Chomsky (1975) described that "the language faculty creates a grammar that generates sentences with semantic properties" (p.36). The knowledge of how a child acquires such a complex skill with essentially minimal effort Chomsky (1975) described as the elusive goal of science.

In a manner similar to that used by Chomsky to define the process of language acquisition, Smith defined the process of reading acquisition (Adams, 1994). Goodman furthers the ideas of Smith by describing that "reading and writing are forms of language and function like other forms of language; children can learn to read as they learn to speak, through exposure to a literate environment; children learn to read and write best when the reading and writing are for authentic purposes" (cited in Stahl et al., 1994, p.175). The whole language movement is based on the philosophy proposed by Goodman that reading and writing are natural forms of language (Stahl, 1994).

Goodman and Goodman (1979) argue that speech and literacy are natural because in neither reading or speech does the user consciously understand the rules of production. These authors identify readers as active

participants in communication with writers. They are seekers of meaning and motivated by the need to comprehend. Goodman and Goodman suggest that "beginning instruction has a vital role to play in creating and enhancing the conditions that will bring the reader's natural language learning competence into play "(1979, p.140). Traditionally the purpose of instruction has been to teach children to read, but within the whole language philosophy the purpose of instruction is envisioned differently. Instruction should help children learn rather than teach children.

Proponents of the whole language approach to reading instruction emphasize it as a belief in teaching rather than a definitive systematic method. Therefore, specific techniques are discouraged because they do not embody the philosophy. It is the teachers who define what whole language means in their classroom. Consequently, the methods employed in each classroom will vary according to the teacher's preferences (Adams, 1994). This is a process of giving the teacher, and the student, the power to choose how learning is to be best accomplished. Whole language classrooms are defined as child and comprehension centred, where children are encouraged to have an active role in the development of curriculum. It is from this standpoint that whole language becomes a political movement advocating an end to decisions imposed on teachers and students by administrators (Moorman, Blanton, & McLaughlin, 1994).

Although the term "whole language" is Canadian in origin, the philosophy was developed in the United States and enjoys an international following with advocates in Britain, Australia and New Zealand (Goodman, 1994). Goodman (1994) cites statistics from American classrooms that indicate a rise in popularity of the whole language philosophy among teachers. He describes that in the past 5 years the use of basal readers in classrooms has

dropped 10% and half of the fourth grade children surveyed report being able to choose their "own" books rather than having basal readers imposed on them (Goodman, 1994, p.345).

Within this philosophy, proponents rebel against the teaching of individual skills, arguing that this process reduces the focus of the whole meaning of text, and makes learning confusing for the child (Moorman et al., 1994). Goodman (1994) agrees with this position saying that "the whole is always more than the sum of its parts" (p.341), advocating for the "whole" as the basic unit of instruction.

Implications for Classroom Instruction

In classrooms that practice this philosophy of reading instruction, it is anticipated that children's adventures with reading will evoke a variety of interests and emotions, especially as they become competent meaning extractors (Cox and Zarrillo, 1993). Children are expected to develop an overwhelming curiosity and drive to read because of their interactions with meaningful material. This process is facilitated by every aspect of the classroom. Cox and Zarrillo (1993) suggest that a whole language classroom must be a literate environment. This, of course, predetermines the presence of books, not just basal text readers, but a variety of materials that children may select and read for themselves. In addition to books, other reading materials may include comics, newspapers and magazines. These authors also describe a number of other items necessary for an effective learning environment. They include: writing tools; an older reader to demonstrate reading; an adult helper to answer the questions of the curious children; models of reading so that children can see others engaged in reading; a focus on meaning so that children develop the idea that reading and writing lead to

understanding; time to read individually; and a range of experiences to build a background upon which children can connect their current understanding of how the world works (Cox and Zarrillo, 1993).

The physical environment of the classroom is very important in creating a learning milieu. The room should be arranged in a manner facilitative of interactions between children and books; children and children; and children and teacher. Quiet carpeted areas should be available so that children can sit comfortably while they read or listen to a story. Desks should be arranged in a manner that encourages intercommunication between children, such as clusters that allow group work to occur naturally.

The responsibility of the teacher is to make the classroom an environment of discovery rather than an environment of teaching (Mills, O'Keefe and Stephens, 1992). Children's reading errors are seen as a natural part of the learning process, and as children grow and develop their errors will disappear naturally (Cox and Zarrillo, 1993; Goodman, 1973). If an error pattern interferes with the process of gaining accurate meaning from text, the teacher's role is in helping the child discover the basis of the error or "miscue". The term miscue is often used in the whole language literature because it is seen as less punitive than the word error (Mills, O'Keefe and Stephens, 1992; Goodman, 1973). If a child misreads one word as another, the teacher's role is to determine what strategy the child relies on and how he uses it incorrectly. This information will help the child develop self correction strategies that will enable her to read more effectively.

Activities important in whole language classrooms include prereading activities that build a bank of background information intended to enhance the child's understanding of reading materials. Exercises of this type include child constructed questionnaires and semantic mapping (Yopp and Yopp,

1992). Questionnaires are developed by the students themselves and based on themes presented in a book being studied. To expand their knowledge and enhance their appreciation for the experiences of others, students consult with their classmates gaining other opinions and values. For example, if a student is studying a book set in another country, they may prepare a questionnaire exploring the cultural origins of their peers.

Semantic maps serve a similar purpose as questionnaires, to build background information and vocabulary. In executing this activity, the teacher highlights the central concept of a story in the middle of a number of related concepts. The students then provide exemplars, details, or affiliated ideas that are added to the map. The teacher lead discussions are meant to illuminate the relationships that exist between concepts, strengthening reasoning abilities (Yopp and Yopp, 1992).

Activities at early grades would probably involve some shared reading time to aid word acquisition through context. Teachers use enlarged textbooks and direct the children's attention to both print and pictures. The teacher reads the story repeatedly until the children are able to read along. Later, individual children, supported by the group, are asked to read segments of the story. When they are unable to identify a word, they are encouraged to reread the section until the word is identified (Milligan & Berg, 1992).

Other common language related activities found in these classrooms focus on writing. In the writing workshop, children are encouraged to practice their writing skills by working on journals or writing to pen pals. In their journals the children tell stories, react to books, discuss experiences or merely draw. The journal is seen as the personal chronicle of development both of skill and idea formation. These writing workshops might be supplemented by other activities such as working on a book to be published

and kept in the school library (Mills et al., 1992).

Comparison Studies Between Whole Language and Skill Based Approaches

Comparison studies between instructional approaches that represent "Top-down" and "Bottom-up" views of reading report mixed findings regarding the effectiveness of each approach. "Top-down" views are represented by whole language or language experience instructional approaches, and "bottom-up" views are represented by skill based or code emphasis instructional approaches.

From an analysis of comparison studies between skill based and whole language instruction, Stahl and Miller (1989) suggest whole language instruction may be most effective for kindergarten children. Because whole language instruction focuses on connected text, this emphasis may provide the prerequisite skills necessary for reading. These emergent skills include awareness of the functions of print as well as specific knowledge about reading, such as punctuation and directionality-- directionality referring to the reading of English from left to right. There is a large body of work in the area of emergent literacy which will not be discussed here because it is beyond the scope of this study (for a review of emergent literacy refer to Teale & Sulzby, 1986).

Stahl and Miller (1989) also speculate that because there is great variability in the amount of time children from lower and upper socioeconomic status (SES) spend engaged in literacy activities in the home, whole language programs may be more effective with children from middle to upper SES. It is speculated that these children may already have gained a strong foundation in print through previous home exposure. Therefore, children who have not had a rich literacy background may require direct

instruction to achieve the same level of print knowledge as their peers. A further value of whole language programs, suggested by Stahl and Miller (1989), is to allow children an arena to practice skills they have already learned, whereas "systematic approaches teach letter sounds and other basic literacy concepts as new information children haven't learned" (Stahl & Miller, 1989, p.108).

Other studies have found results that challenge the conclusions of Stahl and Miller (1989) and Stahl, McKenna, and Pagnucco (1994). Miller and Milligan (1989), Milligan and Berg (1992), Freeman & Freeman (1987), and Bridge, Winograd, and Haley, (1983) all found effects in favour of whole language instructional approaches.

Using a nonsense word task to measure decoding ability and a multiple choice cloze procedure to assess comprehension, Miller & Milligan (1989) found differences between children at various reading levels in each instructional approach. Since there was not an overall significant difference between whole language and word centred traditional programs on the nonsense word test, these authors concluded skills such as decoding are learned through the experience of reading, a result consistent with the philosophy of whole language.

In a follow-up study Milligan & Berg (1992) found positive effects in favour of whole language. However, significant differences were found only for those students who were considered middle and low in reading ability. They claim their findings conflict with the view that whole language is only appropriate with precocious readers. These results show some consistencies with those of Stanovich (1986), Hong-Kim and Goetz (1994), and Biemiller (1979; 1970) who found a facility in poor readers to use context in word identification. Because Miller and Berg (1992) studied differences between

instructional programs, results suggest that the focus of whole language on semantic structures allowed these children to use context more effectively than those in the traditional skill based programs. However, the findings of Milligan and Berg (1992) must be interpreted cautiously because of methodological difficulties with this study. For example, the experimenters trained teachers interested in learning how to teach a whole language program possibly affecting teacher motivational factors. Very little information is given on how these teachers were instructed or how much time was spent refining their teaching techniques. Teachers from the skill-based classrooms were selected on the basis of a recommendation by school administrators because they followed the conventional skill-based curriculum of the district. Unlike the whole language teachers, these teachers did not receive any special attention from the experimenters which might contribute to different levels of motivation between the teachers in the two types of classrooms.

Another potential difficulty with this study is the researchers used only one dependent measure, an experimenter created cloze deletion task. Because whole language teachers often use cloze procedures in the classroom, this may lead to practice effects for the whole language students.

Other comparison studies show no differences between whole-language and skill-based approaches (Griffith, Klesius & Kromrey, 1992), while others show results in favour of skill-based instruction (Evans and Carr, 1985). Griffith, Klesius & Kromrey (1992) found no difference between the children from whole language or traditional programs. They conclude that the most important factor between children of differing abilities is their level of phonological awareness.

Evans and Carr (1985) found results in favour of skill-based instruction;

a finding in the opposite direction to that of Miller & Milligan (1989) and Miller and Berg (1992). Evans and Carr (1985) compared children between traditional direct phonics based instruction and language experience based instruction. The language experience approach is a precursor to today's whole language approach. The definitions of both approaches are essentially the same. Both emphasize child-centered instruction and the extraction of meaning from print (Bergeron, 1990). Bergeron (1990) describes that they both "include the use of children's own language, inclusion of children's literature, a focus on the meaningfulness of language, and the avoidance of skill sequences to organize instruction" (p.305).

Evans & Carr (1985) primarily found that specific print skills are necessary to reading, and are required before any positive effects associated with language ability can be gained. They used a large sample of 20 classrooms. Sensitive to arguments that some measures do not reflect the goals of the language experience approach, these authors attempted to balance their measures on activities used in each instructional condition. Five measures were chosen involving information processing, linguistic maturity, social skill, reading achievement and mathematics achievement. No differences were noted between social skill or information-processing ability. On the remaining three measures, the children in the skill-based classrooms significantly out performed children in the language experience classrooms. Evans & Carr (1985) state that although reading may be piggy-backed on language, it, unlike language, must be taught. They conclude that with modifications the language oriented approach to reading could facilitate reading development as well as or better than the traditional approaches and not lose its child-centered orientation.

Description of the Study

The purpose of this study, similar to those previously described, is to compare children in whole language and skill based instructional approaches. However, this study is more narrowly defined. It is not an evaluation of the overall effectiveness of either whole language or skill based approaches to teaching, but rather, an investigation comparing children's' use of context in word identification. Because within whole language classrooms there is a focus on using context to aid the identification of unknown words, this study explores the question of whether children in whole language classrooms are then able to use context more competently than children in skill based classrooms whose instructional program has a different emphasis. One of the three primary dependent measures is a cloze procedure, which is a common measure in many comparison studies. McKenna and Layton (1990) found cloze to be a sufficient measure of context use across sentences. This is an important consideration because the cloze procedure used in this study was a coherent passage, where context effects may be expected across sentences as well as within sentences.

The remaining two measures consist of a word identification task and a passage involving grapheme substitutions. The word identification task was created specifically for this study, but similar tasks have been employed in other studies most recently by Tunmer and Chapman (1995). Words were presented individually and in the context of a sentence to assist in determining the effects of contextual facilitation. The grapheme substitution task was previously used by Hong-Kim and Goetz (1994) to evaluate the use of context between good and poor readers. In the following chapter the participants, instruments and procedures used in the study are outlined.

CHAPTER THREE

Method

To investigate children's use of context between two instructional approaches, three measures were chosen: (a) word identification with words presented in isolation and in context, (b) a grapheme substitution passage and (c) a cloze passage. Each of these measures was administered to all the second grade participants.

Classrooms

Teachers' instructional philosophy was used as a basis for selection of second grade classrooms. Their philosophy was based on either a whole language or skill-based approach to reading instruction. In the three whole-language classrooms the teachers stressed a literature based program and in the two skill-based classrooms teachers stressed sequential instruction. All of the classrooms were informally observed by the experimenter to confirm that the teachers' instructional practices were in accordance with their stated philosophy. Each of the teachers were asked to define their philosphy of reading instruction and describe how it is reflected in their program. The informal observations confirmed that each teacher practiced techniques in the classroom discriptive of their stated philosophy.

In the whole language classrooms, the children's own writings were emphasized and classroom readers were de-emphasized. The selection of a classroom as whole-language was constrained with the requirement that the teaching of phonetic structures occur only incidentally and not as part of

direct instruction. The teachers in the whole-language classrooms believed that children learn to read and write through meaningful interactions with literature. None of these teachers used basals in a systematic manner. They also believed that children need to read for a purpose, and children learn to read through reading. As well, integrated into the routine of all the whole language classrooms was a writing program that included writing daily journals, poems and stories, the teachers stated that children learn to read through their own writings. Tasks involving bottom-up processes were not completely excluded from these programs, and although they were not a focused component of instruction, the teachers felt it was necessary at times to draw children's attention toward orthographic structures.

In classrooms selected as skill-based the teachers believed that instruction should occur in a systematic and sequential manner. This instructional style included direct instruction of phoneme-grapheme correspondence rules. The teachers who taught within the skill-based philosophy believed children need to have prerequisite skills in order to read, and it is through these skills that children are able to decode new words. In these classrooms, children were encouraged to sound out unfamiliar words. Student attention was directed to both individual letter-sound correspondences and to larger word segments such as syllables. Before reading a new story, teachers first reviewed new words attending to the salient sound features associated with letter combinations that were contained within the words. Next the teachers read the new story aloud and then asked the children to follow along while she re-read the story. In these classrooms, the children also worked in teacher constructed printing books where they practiced copying letters, sentences, and passages.

Five classrooms were chosen from four schools: three where the

teachers followed a whole-language philosophy and two where the teachers follow skill-based philosophy. One whole language and one skill based classroom was located in the same school. Because two of the whole language classrooms were grade two-three splits (where a classroom is made-up of both second and third grade students), a third whole language classroom was required to obtain an equal number of participants between the two instructional approaches.

Participants

Parent permission forms were sent home to all grade two children in the classrooms except the third whole language classroom. For the purpose of expedience, the teacher of this classroom was asked to send permission slips home to only those children she felt were reading at grade two and above. Twelve children were given permission slips and 9 were returned. The three regular grade two classrooms (2 skill based, and 1 whole language) had between 22 to 24 children, while each of the remaining grade two-three split classrooms contained 12 grade-two children. From the skill based classrooms there were 18 participants from one classroom and 9 from the other. In the three whole language classrooms the number of participants were 10, 8, and 9.

A total of 63 children received parental permission, but nine children from one of the skill based classrooms were excluded because of low reading levels. Reading level was assessed using the comprehension subtest of the Gates-MacGinitie. Criteria scores for participation were set at the 25th percentile, corresponding to a grade equivalence of 2.2 (T-score = 43). It was felt that children reading below this level would find the selected reading passages too difficult. Of the fifty-four remaining children, twenty-seven were from the whole-language classrooms and twenty-seven from skill-based classrooms.

Table 1 shows age and reading comprehension means by group. Scores from the Gates-MacGinitie reading comprehension subtest ranged from a grade equivalence of 2.3 to 7.1 (T-scores = 48 to 71) with a mean of 4.3 (58.11) for the skill based classrooms, and from 2.3 to 8.7 (T-scores = 45 to 73) with a mean of 4.2 (57.04) for the whole language classrooms. Two of the children in the whole language group did not receive the Gates MacGinitie, therefore, their group average was substituted. Grade equivalency scores are presented merely as information because of large grade attributions associated with high scores.

The average age for the skill based group was 94.37 months (7. 86 years) and the whole language group was 93.7 months (7. 80 years). No significant difference was found between the instructional groups on age or reading comprehension scores suggesting the groups were equivalent on these dimensions. The numbers of males and females were evenly divided between the two approaches. From the sample of 54 children, there were 32 boys and 22 girls.

Table 1 Description of groups: Number, Gender, Average Age and Reading Comprehension Score

Groups	No.	Gender		Age		Gates MacGinitie	
		M	F	Mos	Yrs.	T-S[a]	Gr. S[b]
Skill based	27	16	11	94.37	7.9	58.11 (7.9)	4.3
Whole language	27	16	11	93.19	7.8	57.04 (7.6)	4.2
Total	54	32	22	93.78	7.8	57.57 (7.7)	4.3

Note: brackets contain standard deviations in T-scores

[a] T-S = T-Scores

[b] Gr. S = Grade Scores

Instrumentation

Reading ability was measured using the Gates-MacGinitie reading test. The three remaining measures employed to determine context use were either constructed or adapted from available material.

Gates-MacGinitie. Scores from the comprehension subtest of the Gates-MacGinitie Reading Tests: Canadian Edition, Level B, Form 4 were used at the individual and group level. At the individual level scores were used to determine those students with sufficient reading ability to read the experimental tasks (MacGinitie & MacGinitie, 1992). At the group level these scores were used to compare the mean comprehension scores of the students in each instructional condition. Level B of the Gates MacGinitie has been constructed for use with second grade children. The reading comprehension subtest consists of forty-six passages with a readability range of grade 1.0 - 6.9. Because the Canadian Edition was standardized on 42,523 Canadian students it is considered a particularly useful tool for use in Canadian schools.

Dependent Measures

Word identification. A word identification task was constructed consisting of two conditions: words presented in isolation and words presented in context. Forty words were selected for this task, 20 from the Word Recognition test of the Brigance Diagnostic Comprehensive Inventory of Basic Skills, and 20 from a revised Dolch basic word list (Elley, Croft, & Cowie, 1977). The Brigance word recognition test consists of high-frequency words that are composed of the phonetic and orthographic features taught in grades two and three. Ten of the 20 words were selected from the second grade level and 10 from the third grade level (Brigance, 1983). The remaining 20 words were chosen from a basic word list. The first 10 words were selected from a list of 100 of the most frequent words occurring in basal readers, accounting for 56.1% of total words. The next ten words were selected from the second most frequent 100 words occurring 10.8% in basal readers (Elley, Croft, & Cowie, 1977).

All 40 words were given to each of the children in two forms: with and without context. In the words in isolation format, the words were given in four lists. Each list was centered on 8 1/2x11" paper and contained 10 words respectively. In the within-context format, each word was underlined and placed within a sentence. In 85% of the sentences the target word was placed so that an equal number or more words in the sentences preceded the target word. All words used in constructing the sentences were found in a second grade vocabulary list (Early, Cooper & Santeusanio, 1979). The resulting words and sentences are presented in Appendix A.

Grapheme substitution passage. This passage was chosen from the experimental tasks used by Hong-Kim and Goetz (1994). The purpose of this task was to measure the effect of orthographic anomalies and determine if classroom instruction affects a child's emphasis on context versus orthographic cues in word recognition (Strange, 1979). The passage consisted of 15 sentences whose level of difficulty was the end of second-grade. To measure semantic context effects, Hong-Kim and Goetz (1994) used a grapheme substitution method. In each sentence one word was changed by substituting a single letter (e.g. She dressed warmly in her *g*oat - *c*oat). Each change produced another real word. In the original study, the primary goal was to measure relative dependence on orthographic and contextual information. Each of the letters chosen produced words that violated the original meaning of the sentences. Neither the altered nor the original words were repeated in the other sentences of the passage. A 10 question comprehension test was also given. Seven of the questions and three of the answers contained target words from the passage (See Appendix B).

Cloze Passage. The cloze passage involved determining the identity of deleted words. This procedure was chosen because it is an effective method

for measuring children's use of context through their predicting ability (Collins & Cheek, 1993). The passage was selected from the Alberta Diagnostic Reading Program (Alberta Education, Student Evaluation Branch, 1986). This passage was written at a difficulty level consistent with the end of second grade, and was created by deleting every fifth word with a total of twenty-six deleted words. The administration procedures were changed from those in the administration guide of the Alberta Diagnostic Reading Test. Instead of being asked to fill in the blank spaces, the children were asked to read the passage aloud and verbally give the missing word. To ensure that all of the children were aware of the task requirements, the experimenter read the two beginning sentences and orally filled in the first two deleted words. The children were then asked if they knew how to do the task and to begin where the experimenter had stopped. At the end of the passage, ten comprehension questions associated with this passage were presented.

Procedure

Testing was conducted throughout the month of May and the first week of June 1995. The children were administered the comprehension test of the Gates-MacGinitie as a group. In two of the classrooms, one skill-based and one whole language, the children had already been administered the Gates-MacGinitie by their teachers in February (1995). Because the purpose of this test was only to establish the reading level of the two groups of children, it was decided to use these scores as opposed to re-administering the test.

The remaining tasks were administered in a separate session. Each child was individually tested by the examiner. The first few minutes of the session was spent informally talking with each child. The child was told that he or she was going to read some words and stories and be asked some

questions about the stories. To help each of the children feel at ease, they were also told that the experimenter was not interested in whether they were right or wrong and the purpose of the session was to see how they read. The children were also informed that a tape recorder was being used to help the experimenter remember what they said. In accordance with ethical guidelines, the children were told that they could stop at anytime and were asked permission to begin.

To guard against sequencing effects the (a) cloze procedure, (b) passage, (c) word identification with context (sentences), and (d) word identification without context (words), were ordered using an incomplete counterbalancing technique (Christensen, 1991). Four orders were created so each of the tasks appeared an equal number of times in each ordinal position and each task preceded and followed every other task an equal number of times. The first sequence was generated using a 1, 2, n, 3 form where n equals the total number of conditions. The remaining three sequences were created through increasing each number by one, where 4 becomes 1 and not 5. The comprehension tests for the passage and the cloze procedure always followed their respective passage.

When asked to read the word identification sentences the children were told that each sentence contains a word that is underlined and they were to tell the experimenter the word that was underlined. To observe if their instructional program had an effect on whether the children chose to use the context in which the target word was embedded, the children were not directly asked to read the whole sentence but were not discouraged if they did so.

Ethical Practices

To ensure this study follows ethical considerations, the design was reviewed by the Department of Educational Psychology Research and Ethics committee, University of Alberta. This review process is required for all research conducted in the Department of Education Psychology using human participants.

Chapter 4

Results

Data Analysis

All data were initially entered into a spread sheet package for Macintosh, Microsoft Excel, 4.0. The data were then transported in to SPSSx (6.0) in order to test for statistical significance. The between group means were compared on each of the three measures and tested for significance using an independent t-test. Further analysis was conducted using a two-way analysis of variance (group X high low performance on each dependent measure) and correlations between student scores.

Dependent measures

Each of the dependent measures was chosen because it accessed context use in word identification. Significant difference was noted only in the cloze passage p-value .006 < .01. Table 2 reports the t-values and p-values for each of the measures.

Table 2 Results of Independent T-tests
Conducted on Each of the Dependent Measures

Measure	T	P
Word Identification		
Words in isolation	-1.23	.223
Words in context	-1.56	.124
Grapheme Substitution Passage		
Altered	-0.13	.899
Original	0.64	.522
Passage comprehension	-1.17	.248
Cloze	-2.88	.006**
Passage comprehension	-1.65	.104

** p<.01

Word Identification. On the word identification tasks, no significant differences were found between the mean number of correct responses in both the isolated and context conditions. Table 3 lists the mean number of correct responses, out of a possible 40, obtained for words presented in isolation and for words presented within context.

Table 3 Performance of Children in Skill Based and Whole Language Instructional Programs: Word Identification Task

Measure	Score	SB[a]	WL[b]
Words in isolation	M	33.70	35.26
	SD	3.79	5.34
	R	25-39	19-40
Words in context	M	34.41	36.19
	SD	3.50	4.75
	R	26-39	19-40

Note: M=mean, SD=standard deviation, R=range

[a] SB = Skill Based

[b] WL = Whole Language

Table 4 Performance of Children in Skill Based and Whole Language Instructional Programs: Grapheme Substitution Passage

Measure	Score	SB	WL
Altered words	M	10.78	10.85
	SD	2.21	2.07
	R	6-15	7-14
Original words	M	3.26	2.96
	SD	1.77	1.60
	R	0-8	1-6
Errors	M	.85	1.26
	SD	1.10	1.32
	R	0-5	0-4
Passage Comprehension	M	6.15	6.70
	SD	1.70	1.79
	R	3-9	3-10

Note. Total possible score = 15

M=mean, SD=standard deviation, R=range

Grapheme Substitution Passage. Responses for the target words in the grapheme substitution passage were coded into three groups: original words, altered words and errors (Hong-Kim & Goetz study, 1994). Results are shown in table 4 out of a possible total score of 15. When a child produced a spontaneous correction it was the first response that was scored. For example if in the sentence "She dressed warmly in her *goat*," the child responded with the altered word *goat* and then spontaneously self-corrected and answered *"coat,"* the first response, *goat*, would be scored as an altered response. It was felt that the child's first response more accurately represented the process of word identification versus comprehension (Stanovich, 1984). For the passage comprehension test results are presented by the number of comprehension questions correctly answered out of a possible 10 points. Table 5 shows the mean number of responses for the altered and original words separate from self corrections.

Table 5 Performance of Children in Skill Based and Whole Language Instructional Programs Responses and Self corrections

Measure	Score	SB	WL
Altered only	M	10.48	10.37
	SD	2.19	2.72
	R	6-15	2-14
Self corrected from altered to original	M	.30	.48
	SD	.54	1.05
	R	0-2	0-5
Original only	M	2.67	2.59
	SD	1.66	1.58
	R	0-8	0-6
Self corrected from original to altered	M	.70	.37
	SD	.78	.63
	R	0-3	0-2

Note: M=mean, SD=standard deviation, R=range

Cloze. Recall in the cloze procedure the children were asked to orally predict 24 missing words from sentences within a story. A significant difference ($p<.01$) was observed for the number of correct responses between groups. As can be seen in table 6, the whole language group had a larger mean number of responses in this category.

Table 6 Performance of Children in Skill Based and Whole Language Instructional Programs: Cloze

Measure	Score	SB	WL
Correct or synonym	M	9.44	12.44
	SD	3.41	4.20
	R	3-17	6-20
Comprehension	M	5.94	6.81
	SD	1.73	2.11
	R	3-9	2-9.5

Note: M=mean, SD=standard deviation, R=range

As in the grapheme substitution passage, the children also received a 10 question comprehension test. There was no significant difference of the mean number of correct responses for the instructional conditions. There was also similar number of correct responses for the comprehension tests of both the cloze task and the grapheme substitution passage.

Further Analysis

To explore the relationship of reading ability to performance on the dependent measures, high and low groups were created by sorting on each of five measures: words in isolation, words in context, altered words, original words and cloze. Equal groups were created by sorting and deleting the middle score for each instructional approach (n=52). The results of the two-way analysis of variance (ANOVA) indicate a main effect of reading ability for

words in isolation, $F(1,48) = 25.34$ $p<0.01$; words in context, $F(1,48) = 39.55$ $p<0.01$; and cloze, $F(1,48) = 39.161$ $p<0.01$. This indicates a strong relationship between reading ability and performance on these tasks. No significant interaction was found between the groups and High and Low performance. This also true for the cloze task showing no significant interaction between High and Low performance and instructional group. An important consideration in generalizability is very low readers were not included in this study, therefore, it is not possible to ascertain if an interaction may have occurred with the inclusion of this group.

There was not a significant effect for scores on altered and original words from the grapheme substitution passage. The main effect of group did not reach a significant level and there was no interaction between instructional group and reading ability.

Table 7 Two-way ANOVA for Instructional Group and Performance on Words in Isolation and Words in Context.

Source	df	M.S	F	P
Words in Isolation				
Main Effects				
Groups	1	23.558	.562	.457
Reading Level	1	1062.02	25.344	.000***
Interaction	1	.481	.011	.915
Error	48	41.904		
Words in Context				
Main Effects				
Groups	1	9.308	.275	.603
Reading Level	1	1340.303	39.555	.000***
Interaction	1	52.000	1.535	.221
Error	48	33.885		

*** p<.001

Table 8 Two-way ANOVA for Instructional Group and Performance on Altered and Original words of the Grapheme Substitutions Passage.

Source	df	M.S	F	P
Altered				
Groups	1	19.692	.286	.595
Reading Level	1	295.692	.1648	.205
Interaction	1	.692	1.648	.205
Error	48	57.795		
Original				
Groups	1	17.308	.341	.562
Reading Level	1	99.692	5.116	.028
Interaction	1	99.692	.012	.913
Error	48	60.481		

Table 9 Two-way ANOVA for Instructional Group and Performance Ability on Cloze

Source	df	M.S	F	P
Groups	1	2.327	.070	.793
Reading Level	1	1310.019	39.161	.000***
Interaction	1	8.481	.254	.617
Error	48	33.452		

***p<.001

Significant intercorrelation between scores on the Gates MacGinitie and words in isolation(r=.6025), words in context (r=.8556), cloze (r=.8234) and altered words (r=7236) suggest a strong relationship between reading ability and these measures. However, there is not a strong relationship, either positive or negative, between performance on the Gates MacGinitie comprehension subtest and scores from the original words of the grapheme substitution passage. Of interest is the significantly high correlation between words in context and cloze (r=.9849). These two measures were also significantly correlated with the Gates MacGinitie comprehension subtest.

Table 10 Correlation Between Student Scores

	Gates	words	context	cloze	altered
Gates					
words	.6025**				
context	.8556**	.5105**			
cloze	.8234**	.5666**	.9849**		
altered	.7236**	.7860**	.6957**	.4502**	
original	.0169	.0884	.1677	-.0715	-.4160**

** p<.01

Note: words = words in isolation, context = words in context

Chapter 5

Discussion

This chapter integrates the results of this study and provides implications for classroom instruction. Presented also are design limitations on interpretive breadth, as well as directions of future research.

The emphasis of this study was on investigating whether children's use of context in word identification is influenced by their program of instruction. Two program types were chosen that related literature indicates have a differential emphasis in using context as an instructional strategy. The first type was whole language classrooms whose teachers focused on using context as a means of predicting unknown words. The alternate program chosen was a skill based program where the primary strategy taught for word identification was decoding. Near the end of the school year, the children were administered a word identification task (words were administered both with and without context), a cloze task, and a grapheme substitution passage that contained words that had been altered producing another real word.

If instructional program affects performance on these tasks, a logical finding would be that children in the whole language classrooms, whose instructional focus is on the use of context in word identification, should be able to use context more effectively than those children in a program that does not emphasize context. Overall the results from this study show only a significant difference in favour of whole language on the cloze passage, although there was not a significant difference on comprehension scores . The remaining dependent measures show no significant differences between the two groups.

It has been suggested that word identification tasks are unfairly biased against children in whole language classrooms because these children do not focus on words in isolation (Freeman & Freeman, 1987). A bias was not apparent in this study because the performance of children from the whole language programs was similar to that of children in the skill based programs on isolated word identification. There was also no difference between the two programs on the children's performance on the word identification in context. When administered this task, the children were not directed to read the sentence, but were asked only to name the word that was underlined. It was assumed that if the children relied on context as their primary source of information for word identification, they would use this information spontaneously. The children performed in a similar manner irrespective of instructional affiliation. All the children seemed to rely primarily on the graphic information available in the word, and overall the context available in the sentence condition only allowed the identification of one more word than in the isolated condition. An analysis of variance (ANOVA) showed a significant difference between reading ability and performance on both words in isolation and words in context.

In the cloze procedure where there were no graphic clues available, context was the only information that could be elicited in identifying missing words. Results from a two-way ANOVA show there was not a significant difference between the two instructional groups, but there was a significant difference in reading ability, indicating that better readers achieved a higher cloze score.

In the final measure, the grapheme substitution passage, there was not a significant difference between the groups in using either the graphic information contained within the word (altered) or the contextual

information contained within surrounding words (original). Furthermore, there was not a significant difference between reading ability and whether a child responded with altered or original responses. Overall the children responded with more altered than original words, suggesting an emphasis on graphic versus contextual information. Again it might be anticipated that if instructional program affects the use of specific information, the children from the whole language group would be expected to respond most often with the original unaltered words because these are most consistent with the context. Likewise, the children from the skill based classroom would be expected to respond most often to the altered word because of an instructional emphasis on graphophonic information. However, these assumptions were not consistent with findings.

A significant correlation between the Gates MacGinitie's scores and the altered word scores suggest a strong relationship between these measures. Hong-Kim and Goetz (1994) found good readers more often read the altered words. But contrary to the findings of Hong-Kim and Goetz (1994), that poor readers more often chose the original words consistent with context, the results of this study do not show a significant negative correlation. However, because the groups used in this study were constructed with an imposed minimum reading ability, it is not possible to generalize these results to the lower reading levels found in grade two classrooms. The overall high reading ability of the participants likely accounts for the lack of effect of reading ability.

The results of this study suggest that for grade two instructional program does not effect how a child uses context. A possible explanation for the non significant findings is that the teachers may actually focus on individual learning needs rather than their philosophy when programming.

Investigation of this possibility would require a detailed analysis of instruction throughout the year and if valid would show the classrooms to have more components that are similar than different. An alternate explanation for the non-significant findings is that the development of reading is sequential and relatively resistant to the effects of instructional approaches. This explanation is consistent with the developmental perspective proposed by Biemiller (1970) and Share & Stanovich (1995) that as children become able readers they rely predominantly, although not exclusively, on graphic information. It is not possible to examine the performance of true poor readers on these tasks, because poor readers were not included in the sample of participants.

Implications for Classroom Instruction

When comparing whole language and skill based approaches researchers have found a number of conflicting results: some, similar to this study, have found no difference between instructional programs, while others have found effects in both directions, some in favour of whole language and some in favour of the skill- based approach (Stahl et al., 1994; Griffith et al., 1992; Stahl & Miller, 1989; Evens & Carr, 1985).

As discussed in Chapter 2, Stahl and Miller (1989) promote a movement between instructional philosophies. They state whole language approaches may be most beneficial at very early stages of reading when children are becoming acquainted with print and its functions, but are not yet ready to read. As children move into the next phase and begin to learn sound print correspondence rules, the more systematic and direct skills based approach may be preferable. After a child has successfully completed this phase and is aware of the alphabetic principle, practicing this new skill

through the connected structure of whole language may be the most favourable method.

A reading program cannot remain unchanged over time. As children become proficient readers and their skills change and develop, their teachers need to match this growth with corresponding instructional strategies. There should be a move towards convergence of instructional methods, where programs are merged to create a complete approach to reading: an approach where teachers are sensitive to the individual needs of their students and encouraging strategies that have been developed and used in many different programs (Stahl, McKenna, & Pagnucco, 1994). Children who have difficulty cracking the written code would receive direct instruction in decoding skills as well as predicting and analogizing. Stahl et al. (1994) refer to these types of programs as "eclectic".

The Integrated View of Reading

Integrated models. Support for eclectic programs is found in theories focusing on the interactive nature of reading processes. Those who advocate this view find that these theories simultaneously account for bottom-up and top-down processing. Adams (1993) suggests that any model of reading must enable the process to be understood as a whole by integrating all of its relevant parts. She acknowledges the utility of understanding the process of word recognition, but considers the helpfulness of this knowledge depleted unless placed within the context of the larger activities of language, comprehension and thought. According to Adams (1993) the most powerful models are those which are not exclusively top-down or bottom-up, but are composed of processors that are simultaneously active and interactive. Adams (1993) defines four separate processors, but she prefaces their

introduction with a cautionary note that they are not to be viewed as independent processes, but as interrelated and connected through the experience of the reader.

The first is the orthographic processor. This is the only processor that receives visual information, therefore, it has the closest connection with print. The information processed is composed only of visual letters. All letters are processed individually, but the reader is also sensitive to familiar letter combinations that allows for faster processing. Readers become sensitive to the internal rules of spelling and aware of letters that cannot occur together within the same syllable but can occur together across syllables such as "dn" in "midnight" (Adams, 1993).

The second is the context processor which primes the reader to expect word meanings consistent with the preceding text. However, Adams (1993) states that "even while the context processor facilitates the reader's awareness of appropriate words and meanings, it does not prevent stimulation of inappropriate ones (p. 849). For example, both meanings of a homonym would be activated even though one may not be consistent with the preceding context. Adams' (1993) views the primary purpose of the context processor is helping the skilled reader efficiently use the words on a page.

The third component is meaning processor, which stores the meanings of all the words the child knows. These meanings are held in interrelated sets. New words are added gradually as they are encountered. It is unlikely that a word will be retrieved after only one encounter, but after repeated encounters with the same word it will form strong associations in memory, allowing eventual ease in retrieval without the necessity of context (Adams, 1993).

The final component, the phonological processor, processes the speech

sounds associated with the visual information from letters. Although not required by skilled readers, this information is automatically produced. The phonological processor is stimulated by and stimulates both the meaning and orthographic processors. Visual information from the orthographic processor stimulates phonological correspondences which in turn activate the word meaning from the meaning processor. Similarly the meaning processor feeds back into the phonological processor the pronunciation of the word. All the processors function together interactively to produce the whole process of reading (Adams, 1993)

Word identification and interactive theories of reading. Numerous researchers have studied the type of information children use at different points in reading development. From a variety of experimental paradigms, results converge showing when both good and poor readers read material just beyond their ability level they rely on context to assist word identification (Share & Stanovich, 1995).

Using an oral error analysis, Biemiller (1970) found that children develop reading skills through three phases. In the initial phase of reading errors are appropriate with the context, but generally not related to the graphic information presented in the word. Next, children enter a non-response phase where they do not respond when encountering an unknown word. Biemiller suggests this reaction illustrates the children realize each word has only one corresponding oral interpretation, and they are unable to identify the oral interpretation that corresponds with that word. In the third phase the young readers' errors show they are concerned with both graphic and semantic acceptability (Biemiller, 1970). Chall (1983) equates Biemiller's phase one readers with her stage 0 readers, because in both stages the children are concerned only with the meaning of the words on the page and the

message they are attempting to convey.

A further study conducted by Biemiller (1979) included non-response as a scoring category of error analysis. Non-response errors indicate the use of graphic information because a reader cannot determine a word is unknown before it has been encountered. Substitution errors constitute both a graphic and contextual error. In this situation the reader responds with a word that is orthographically similar to the target word but not consistent with the context. Biemiller's overall results showed that the most able readers made the lowest number of non-response errors on the same passages read by the other groups, a finding that would be consistent with Goodman's hypothesis that good readers rely less on graphic information. However, when the children of 4 different ability groups were compared on text at variable difficulty levels, the results from text described as difficult for each ability group provide an alternate interpretation. Within the most difficult passage for each group, defined by the ability to read the passage without making more than 25% errors, the poorest readers made fewer non-response errors than did the other groups. Biemiller (1979) states "this suggests that the poorest readers were less likely to adopt a strategy oriented towards using graphic information when confronted with difficult material than were the other children" (P. 314).

Findings similar to those of Biemiller (1970; 1979) have been described in other research centred on how children of different reading levels use context in word identification (Biemiller, 1994; Stanovich, 1984; Stanovich, Cunningham and Freeman, 1984; Hong-Kim and Goetz, 1994; Leu, DeGroff & Simons, 1986; and Goldsmith-Phillips, 1989). Stanovich (1984) used reaction time as a dependent measure when investigating the use of context between good and poor readers. He developed the interactive-compensatory

hypothesis as a tool to aid in explicating the finding that children at different levels of reading ability rely on dissimilar sources of information in word recognition.

Stanovich (1981) developed the interactive-compensatory hypothesis from an earlier interactive model of reading. The interactive function shows the relationships of all levels of analysis tapped during the process of reading. The compensatory function is used to describe the interrelationship of various information processors. Stanovich (1984) describes "deficiencies at any level on the processing hierarchy can be compensated for by a greater use of information from other levels, and that this compensation takes place irrespective of the level of the deficient process" (p.15). Therefore a strength at any level of processing is able to compensate for weakness at another level (Hong-Kim and Goetz 1994). Although there is much evidence to confirm that skilled readers more easily use context to integrate and comprehend, none shows that skilled readers are more dependent on this information than readers at other skill levels (Stanovich, 1984). Stanovich, Cunningham, and Freeman (1984) found less skilled first grade readers were getting as much contextual facilitation from coherent paragraphs as the skilled readers. Less skilled readers performed poorly relative to their more skilled counter-parts because of their poor decoding skills, rather than an inability to use context to facilitate word recognition (Stanovich et al., 1984).

These findings conflict with Goodman's hypothesis that contextual information speeds ongoing word recognition during reading. Goodman hypothesized that through contextual redundancy, the fluent reader no longer must sample a large number of visual features and, therefore, relies less on visual cues (Stanovich, et. al., 1981). Goodman's assumptions may exist but perhaps not at the word level. Goodman's (1976) notion of

developmental changes in context use may be most appropriate at the level of text integration, especially since it has been shown that poor readers are less skilled at employing comprehension strategies. Stanovich (1984) suggests that processes requiring efficient use of comprehension strategies may be affected by the subtle language difficulties often displayed by poor readers (Stanovich, 1984).

Stanovich (1984) uses two processes in describing the actual mechanisms that may be at work in the interactive-compensatory hypothesis. The first is unconscious automatic spreading activation. This mechanism is very fast but only operates to activate words from context. The second mechanism is a conscious process of "specific contextual prediction" and is much slower than the first because it is attentionally controlled. In adult readers there exists a pattern of facilitated dominance and fast reaction times that indicates context affects reading through a spreading activation mechanism. Children and poor readers show inhibition effects illustrated through their performance when an incongruous context of related material slows identification. These readers are assumed to make use of conscious contextual prediction. When using this mechanism their speed in processing congruous words in context will increase because of the constrains provided by the sentence, and will also require the use of attention which is not required in automatic processing. Because of the extra burden placed on the limited attentional capacity, other processes that also require attention may be compromised, such as comprehension which is primarily attentionally controlled (Stanovich, 1984 p.15).

In a recent overview of the cognitive processes in early reading development, Share and Stanovich (1995) propose that context is important in the development of reading skills but is not a source of individual

difference in reading ability. They support their claims with findings that both skilled and less skilled readers rely equally on context when reading difficult text.

However, the position of Share and Stanovich(1995) has not gone unchallenged. Tunmer & Chapman (1995) view context as very important to the process of reading and suggest it may be an indicator of individual differences in reading ability. In their view, the ability to form grapheme-phoneme correspondences is necessary but not sufficient in reading. They say further that "the ability to make use of contextual information to supplement incomplete word-level information is a source of individual differences in learning to read" (Tunmer & Chapman, 1995, p.99). They support their position with recent research indicating that those children developing, or with some phonological decoding skills, benefit from context. Using a contextual facilitation task, these authors had children read irregular words both with and without undetermining context. This is defined as context that does not specifically predict the target word. For example in the sentence "He couldn't find his *money*" money is the target word.

The results show that contextual facilitation increased the number of words recognized, but the largest gains were found for those children with "moderate or emerging phonological recoding skills" (as measured by the pseudoword naming task) (p.99). Tunmer and Chapman (1995) suggest that the decoding skills of these children were not adequately developed to use primarily graphophonic information in identifying words in isolation, but the addition of context, even undermining context, facilitated identification. However, the same trend was not noted for poor readers who were unable to use phonological information and, consequently, were also unable to use the undetermining context. These researchers conclude that the ability to use

phonological information is imperative in the reading process, but other types of information are also required, as demonstrated by the ability of the children with some decoding skill to read more words when they were placed in context. Although at this time Share and Stanovich (1995) reject context as an indicator of individual difference in reading, further research may conclude otherwise.

Regardless of whether context is predictive of individual differences or not, these studies suggest a developmental progression in reading that dictates the inclusion of both graphic and contextual instructional techniques into reading programs. Biemiller (1979) suggests that findings illustrate that by the end of grade one children show a shift to using primarily graphic information. Even able readers who were being taught in a "meaning-emphasis environment" began to rely on graphic information. Biemiller (1979) concludes that all sound-spelling relationships cannot be taught, but if it is ability in using of graphic information that separates good from poor readers, then teaching strategies should be adapted to incorporate this type of information.

The philosophy of whole language can be interpreted as promoting eclectic programming. The child-centred nature of the philosophy allows for individual strengths and weaknesses to be realized and used in developing a program that responds to specific needs. Unfortunately the rigidity of some advocates of whole language would force them to denounce any attempt to place it on any evolutionary track: especially a track that includes the use of direct instruction of phonological units to decode unfamiliar words (see Goodman, 1986). Stahl et al., (1994) describe that both whole language and skill based programs are required to meet the needs of children. Children need to learn to comprehend, decode and think about what they are reading.

These researchers assert that within the classroom good teachers "transcend philosophy and politics" to meet the needs of all their students (P.183).

By its very nature the reference to "good" teachers also presumes the existence of teachers who are not as good. As is true in all professions, there are teachers with varying levels of skill and commitment to teaching. Undoubtedly there exist some skill-based teachers whose programs revolve exclusively around worksheets for decoding and comprehension skills (Stahl & Miller, 1989). It is this prototype that whole language purists suggest represents all skill oriented programs. But there are many "good" teachers who use direct decoding instruction and still provide an interesting program that motivates children. Goodman (1994) describes whole language as a grass roots movement beginning with the teachers. If the force of change exists at the grass roots level, then it is the teachers themselves that will forge the path toward an eclectic approach to teaching, because it is the teachers that realize children require a number of strategies to assist in the process of learning to read.

Moreover, it is not merely a specific teaching philosophy that ensures the success of a reading program, there are many other factors that are intricate to creating a successful program. These factors include time spent on task, time students actually spend engaged in reading related activities, teacher responsiveness to the individual needs of the students, administrative support of the reading program and an underlying assumption that school has and impact on children's achievement (Berliner, 1981; Samuels, 1981).

Time spent on task and time spent engaged in reading related activities both refer to the amount of actual learning time occurring in the school day. Berliner (1981) found there were large variations between classrooms in the

allocation of time for reading instruction and related activities. These differences also affected results on standardized reading tests indicating that children from classrooms where more time was allocated to reading instruction performed better. Time engaged in reading activities refers to the time children are engaged with a learning activity and not waiting for it to begin or continue. This is more specific than the mere allocation of time, and actually involves the time spent actively engaged in reading tasks. There are a number of ways that create discrepancy between time allocation and time engaged, but the primary cause is classroom management. The more time spent in transition from one activity to another, and spent dealing with disruptive behaviours, the less time is available for actual learning to be accomplished.

Another important factor affecting program success is teacher responsiveness to the individual needs of the student. From this perspective a teacher's commitment to a particular philosophy is less important than the commitment to the learning needs of students. If one particular approach or set of materials is not working for an individual student, then another approach or set of materials is employed regardless of the type of program it may represent (Samuels, 1981).

The most important factor affecting success is administrative support. This ensures fluidity of belief and implementation between administration and teachers. To be successful a program cannot be imposed from the top without the enthusiasm and support of teachers. Likewise, a program also cannot develop through teachers without the support of administration (Samuels, 1981).

Lastly, also significant to a successful reading program are the assumptions that permeate a school. It is important that the prevailing

feeling throughout the school is that teachers have an impact on children, where they feel they make a difference and are dedicated to bringing about success for their students (Samuels, 1981).

Limitations

This was an exploratory study designed to investigate if there exist relatively gross differences in children's abilities to use context in word identification between whole language and skill-based classrooms. Because a post-test only design was used, it is impossible to ascertain if the children in both groups were equivalent at the beginning of the study, thereby making it difficult to hold constant teacher competence. If a highly competent teacher had an effect on children's reading abilities these children may use context more effectively than they would with a less competent teacher and vise-versa; a possibility that this design cannot measure.

A second limitation of the study was the extent to which the teachers employed their instructional philosophy in the classroom. Although all the classrooms were observed informally to ensure teachers' instructional techniques were in accordance with their stated philosophy, it is difficult to determine the extent of experimenter effect on the choice of activities used by the teacher during the day of observation. A more involved study should be conducted exploring the relative purity that teachers follow a proscribed philosophy. If, as Stahl and Miller (1989) state, good teachers use techniques best suited to individual needs rather than only those affiliated with a specific teaching philosophy, teachers may generally be using an integrated approach, and only differ in the degree to which they use techniques associated with a particular philosophy. Finally, because the study lacked very low level readers, the apparent lack of difference in using context in word identification

cannot be generalized to all reading levels.

Directions for future research

Perhaps now the time has come not merely for comparisons between whole language and skill based approaches to reading, but for exploration into effective elements from these individual philosophies and combine them into an eclectic approach.

The available literature in the area of reading is asymmetrical. There exists an extensive literature on various aspects of bottom-up processing, such as phonemic awareness but a paucity of studies exploring how this research translates into practice. Conversely, there is a large amount of literature on the practice of whole language, but relatively few studies exploring the viability of the top-down approach to reading. While conducting a methodological analysis of whole language research, Almasi, Palmer, Gambrell, and Pressley (1994) found there were only a small number of research studies. These authors suggest a possible explanation may be that the practice of whole language has lead the way and research may follow. These researchers found that a larger number of articles appeared in professional journals than in more selective refereed journals. This finding may support the view of whole language as a grass-roots movement beginning with the teachers and eventually trickling up to researchers. However, Almasi et al., (1994) also present an alternate explanation, suggesting the methodologies used by whole language researchers are not those preferred by journal review committees. Whatever the reason, perhaps we need to move ahead researching effective approaches to reading instruction, rather than standing still and continuing the "debate" that has existed for nearly 30 years. It is now time to integrate what we know about

children's cognitive processes into what we know about practice.

Concluding Remarks

The debate between the two philosophies may cloud the actual perceptions of teaching. If we peeked into two classrooms representative of each of the two teaching philosophies, what might we see? The answer depends upon which lens we choose to use when viewing the classrooms. If, for example, we look into a whole language classroom through the lens of a whole language advocate, we would see a magical place filled with "literature" and "authenticity." Children would be actively interacting with literature, not just books, and creating their "own" "authentic" writings. An analogy for this magic place can be made to "Oz", where Dorothy and the other children are engaged in extraordinary adventures guided unobtrusively by the wisdom of their teacher, Ms. Glenda North. As in the story, Dorothy and the children are allowed to freely explore this new place. Only here, in the classroom, the wonder and adventure is sparked by the literature that surrounds them.

How would a skills-based classroom differ from the classroom just described? This again depends upon which viewing lens is chosen. Through the whole language lens, a skill based classroom would completely different from the previous description. First of all, there would be no magic. Dorothy and her classmates would be tethered to old, wobbly desks arranged in rows. They would be slavishly labouring on some non-meaningful worksheet task, and under the constant scrutiny of their unimaginative overseer. Although this description seems absurd, it is what is envisioned through the sieve of the whole language zealot. From this perspective, the purpose of the skill

based classroom is "the mastery of hundreds of discrete skills" taught through a formal reading program that contains basal text books with severely restricted vocabularies, worksheets and tests (Cox and Zarrillo, 1993, p.11). Teachers are described as blindly and uncreatively following a proscribed program.

Although this type of classroom may exist, to generalize it to all skill-based classrooms would no doubt offend more than a few skill oriented teachers. These classrooms will differ in some aspects from the whole language classroom previously described, but in some aspects classrooms of each orientation may be virtually indistinguishable. The position of skills-based advocates is not that meaning is unimportant but that learning to read requires the ability to identify words. From this view-point, children arrive at school with an enormous understanding of the meaning of words, but usually do not go to school with the ability to read these words. Children, therefore, must learn the associations between the sounds in the words they know and their corresponding visual forms they may not know. Heilman (1989) describes that teaching reading requires a range of approaches to be successful. Children must learn to use a variety of information, such as configuration clues, picture clues, phonic analysis, structural analysis and context clues, to learn to read. Information from these sources is differentially helpful when solving the word puzzle. Information gathered from the unique features of the word may be the least helpful of all the possible information available, especially because many words of similar size have similar identifying features. For example, "look" and "book" have a similar physical structure and therefore may be easily confused by an inexperienced reader (Heilman, 1989). Phonics is viewed only as one method by which children can gather information about the identity of a word.

However phonetic information is viewed as an important contributor to all other sources of information. To become an accomplished reader the beginner must acquire (a) the application of letter-sound relationships, (b) the ability to enlarge sight vocabulary, and (c) the ability to profit from context while reading (Heilman, 1989).

Although the whole language philosophy excludes the use of explicit phonics instruction, the skill-based philosophy does not exclude the use of connected text in its instructional scheme. Very few children would enjoy being pupils in a classroom run by an unimaginative overseer. Likewise, few would not enjoy the open ended adventures available in the whole language classroom. By capturing a child's imagination, undoubtedly their motivation is also tapped. The teacher who has the expertise to motivate a child has the most important key in helping that child unlock the word.

When discussing reading, and particularly reading instruction, it is necessary to present the views of both whole language and skill based advocates. Although these views appear diametrically opposing on the surface, a deeper analysis would most likely find they overlap on far more issues than many researchers would readily admit. For example, both sides advocate using a variety of strategies in the classroom. These viewpoints have contributed greatly to theories of reading. However, adhering strictly to any one philosophy may lock out valuable insight that can be gained from the other. Rigidity of philosophy may in fact prolong the elucidation of the reading mystery, which unfortunately means a loss to the children who may have benefited from programs developed out of a greater understanding of the reading process.

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APPENDIX A

WORD IDENTIFICATION TASK

Words in isolation

your	something	threw	cheerful
school	because	choose	knives
went	white	squirrel	invisible
now	about	straight	anxious
this	thought	knock	although
could	milk	eight	mistaken
house	people	mountain	museum
make	right	noise	worries
into	lamb	circus	stomach
after	keep	fruit	drawer

Words in context

1.
John and Sally went to the pond.
I like your house.
Susan read this book here.
All the children arrived at school at the same time.
We are going to the store now.
The children went into the kitchen to make lunch.
Tom and Jeff played in the park after school.
The family lived in a very big house.
Joe ran very fast into the water.
Susan knew she could learn to ride her bike.

2.

Ken liked books about wild animals.
The children had to stay inside because it was cold.
Today there were lots of people at the park
It was raining so Sandy thought she better hurry.
Paul found a kitten and wanted to keep it.
All of the children had milk to drink.
Dan knew the right answer to the question.
Everyone loved the black and white cat.
The mother sheep and her baby lamb went for a walk.
The dog saw something small on the table.

3.

Jane wanted to choose the new puppy.
Tom's mother went to the store to buy apples and other fruit.
Up the tree ran the little brown squirrel.
The clowns were very funny at the circus.
After school the children ran straight home.
In the playground the children made a lot of noise.
The door was closed so the children had to knock on it.
John got to the top of the mountain first.
Tommy threw the ball far away.
Sam had to go to bed at eight o'clock.

4.

To eat the food the children need spoons, forks and knives.
Sue kept all of her socks in the same drawer.
They could not see the rabbit anymore because it was invisible.
All of the food I eat goes into my stomach.
Tom felt scared and anxious in the dark cave.
Mother bear worries about her baby.
Pat shared her candy with the other children although she wanted to eat it all herself.
Tim saw lots of very old things on his visit to the museum.
Spring made everyone feel cheerful.
Jan had mistaken Pam's boots for her own.

APPENDIX B

GRAPHEME SUBSTITUTION TASK

Passage

Saturday morning, just after breakfast, Mary went for a wall with her father. The spring leather was clear and beautiful, but her nose got cold. She dressed warmly in her goat. Soon they name to a farm. In the bark, they saw a farmer milking his cow. The man game Mary a glass of milk. A group of sheep was in the field rating green grass and enjoying their meal. A young lamp stayed close to its mother. Next they hired up a hill into a forest. They saw a man cutting mood with his brown spotted dog. Above the tries, birds of many colors were flying. They went ground the farm for a long time. Finally, one of Mary's feet started hunting. She had to take her shop off. She found a rack in it.

Reading comprehension

1. What was the weather when Mary went out with her father?
2. Why did Mary wear a coat?
3. Where do you think they went?
4. What was the farmer doing in the barn?
5. What did the farmer give Mary?
6. What did Mary and Father see in the Field?
7. What did the young lamb do?
8. Where did they see the man cutting wood?
9. What were the birds doing?
10. Why did Mary take off her shoe?